## CenterState NY Build Back Better Coalition – Vision for a Vibrant *Smart Systems* Cluster

In today's digitally connected world, it is critical to be able to sense, analyze, and interpret data in real time. Those capabilities ensure that we can make the human and autonomous decisions necessary for commerce and industry to thrive. The manufacturing and analytic capabilities that make this possible—including Uncrewed Aircraft Systems (UAS), radar and sensing, Internet of Things (IoT), 5G, sensors, and semiconductor chips— serve as the backbone of a burgeoning **Smart Systems** cluster in CenterState NY: an eight-county[1] region containing the Syracuse and Utica-Rome MSAs and the Syracuse-Auburn and Ithaca-Cortland CSAs. A CenterState NY Coalition has prioritized a series of eight interconnected Smart Systems cluster projects with a vision for achieving equitable economic growth through:

- Supporting the growth of existing Smart Systems industries by investing in the development of emerging market verticals such as UAS and Smart Cities;
- Bringing geo-political resiliency and security to the Cluster supply chain through the development, and expansion, of trusted semiconductor chip manufacturing facilities;
- Making investments in quantum computing to improve both the volume of processing power and the security of data that is processed within IoT;
- Spreading the economic benefits of the Smart Systems cluster to residents of both urban and rural geographies, especially those from historically marginalized populations, through large-scale workforce training to access quality jobs and startup assistance across the full life cycle of business formation, growth, and expansion.

To achieve this vision, the Coalition will leverage regional experience in cluster development, one case of which is outlined in the Brookings Institution's 2018 *Rethinking Cluster Initiatives* report. The proposed Smart Systems cluster approach combines traditional cluster interventions (infrastructure, talent development, research and commercialization, entrepreneurship, and supply chains) with foundational enablers (equity, governance, resilience), all necessary to grow a thriving cluster in the 21st century global economy.

## The CenterState NY Region

The CenterState NY region (p. 1,183,118; *2020 Census*) is one of the largest and most diverse economies in the northeastern U.S., offering exceptional talent, natural assets, and opportunity. The region's labor force stands at 532,000 (*August 2021 NYS Department of Labor*) and boasts a high concentration of higher educational institutions: 35 serving over 140,000 students. Centrally located in both New York State and the Northeast, the region enjoys easy access to 1.5 million businesses and 53 million people within a 300-mile radius of Buffalo, Toronto, Ottawa, Montreal, Boston, NYC, Baltimore, Washington, D.C., Pittsburgh, Philadelphia, and Cleveland.

Growing CenterState NY's Smart Systems cluster offers one of the single best opportunities to drive much needed, transformative regional economic growth. CenterState NY has historically lagged both state and national indicators due to post-industrial manufacturing losses from offshoring/relocation decades ago as evidenced by the table below:

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[1] Onondaga, Oswego, Cayuga, Cortland, Tompkins, Madison, Oneida, and Herkimer counties.

| Indicator | CenterState, NY | New York State | US |
|---|---|---|---|
| Population Growth (2010-2020) | -1% | +4.25% | +7.4% |
| Labor Force Participation rate (2020) | 60.6% | 63.1% | 63.2% |
| Median HH Income (2020) | $58,932 | $68,486 | $62,843 |
| Poverty Level  (2020) | 14.7% | 14.1% | 13.4% |
| Median House Value (Owner-Occupied) | $136,312 | $313,700 | $217,500 |

According to StatsAmerica distress measures, the region's threshold calculations are 87.1 (PCPI) and 92.4 (PCMI), and its unemployment rate 11.3% (*Jobs EQ*), 11% higher than the U.S. rate of 10.2% (July 2020, *Statista.com*). Its cities struggle with high rates of concentrated poverty, particularly for Black and Latino populations[2]: Syracuse (Onondaga County), 31%; Utica (Oneida County), 29.4%, and Ithaca (Tompkins County), 39.2%. The COVID-19 pandemic only exacerbated and highlighted these disparities. As of 2020, total GDP in the region was $55.64 billion, a 3.6% decline from 2019 (*Jobs EQ*). That is 57% higher than the decline in U.S. GDP over the same period (from $21.43T to $20.94T or 2.3%, *World Bank*). In the first quarter of 2021, total regional employment was 493,080, a 7% decline from 2020. However, with the implementation of cluster interventions proposed in this application, significant progress can be made to improve these economic conditions.

## The CenterState NY Smart Systems Cluster

The roots of the CenterState NY Smart Systems cluster can be traced to the mid-20th century when GE and its Heavy Military Division had major installations in Syracuse (Onondaga County) and Utica (Oneida County), developing regional expertise in radar and signal processing. After the large-scale offshoring of manufacturing in the 1970s, jobs were lost but the high-tech expertise remained; firms like Lockheed Martin, Saab Sensis, SRC, JMA, and Anaren TTM continued innovating. Over the past decade, regional stakeholders have engaged in multiple studies to catalogue this expertise that have identified a series of interconnected industries with similar supply chains and occupation demand. A 2012 study by Battelle was the first to outline "cluster targets of opportunity", as well as existing and emerging strengths developed over time.

Subsequent participation in the Brookings Institution's Metropolitan Business Plan pilot identified at least 50 tech companies that comprised a new "Data to Decisions" (D2D) cluster in the region. These companies "share expertise in a variety of fields involved in the processing of massive flows of information to manage increasingly complex systems in real time". Industry sectors with these capabilities "[account] for nearly half the patents generated in the region" and the sector benefits from major universities that "play an active role in the development of this specialized knowledge, particularly Cornell University and Syracuse University, whose faculties are leading regional generators of D2D intellectual property, indicating strong potential for new ventures based on cutting edge research[3]".

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[2] Jargowsky, P. "Architecture of Segregation: Civil Unrest, the Concentration of Poverty, and Public Policy". The Century Foundation, 2015. Available at: tcf.org/content/report/architecture-of-segregation/
[3] "CenterState New York Agenda for Economic Opportunity", A Metropolitan Business Plan prepared in collaboration with the Brookings Institution Metropolitan Policy Program, November 2013.

In 2020, JPMorgan Chase conducted a cluster analysis through Syracuse's $3M *Advancing*Cities[4] grant, which identified the component industries within what is now call the Smart Systems cluster.[5] This cluster boasts globally competitive firms with long time roots in the region and is tied to strong market forces that demonstrate significant and ongoing demand for semiconductor chips, UAS, and 5G technology. The cluster aligns directly with federal initiatives to reshore manufacturing supplier networks, especially those with significant national security implications such as semiconductor chip fabrication.

At 40,143 employees, the cluster's <u>current</u> total employment is 8% of all regional employment, and boasts an average wage of $73,397, 35% higher than the average wage for all NAICS classifications ($54,214). Based on CenterState CEO's preliminary occupation demand analysis[6], there is a total <u>projected</u> demand of 14,978 jobs over the next five years within the cluster. Those projected jobs are estimated to have an average wage of $98,400.

### CenterState NY Smart Systems Cluster BBBRC Coalition Members

Highly experienced in convening and managing multi-partner coalitions, CenterState CEO will serve as Lead Institution to convene and coordinate Coalition activities (*please see application component #3*). Additional Coalition members include Cayuga Community College, the City of Syracuse, the CNY Regional Planning and Development Board (CNY RPDB), the Griffiss Institute, Mohawk Valley Community College, Mohawk Valley EDGE, the Northeast UAS Airspace Integration Research Alliance (NUAIR), OCM BOCES, Oneida County, Onondaga Community College, Onondaga County Industrial Development Authority (IDA), Oswego County IDA, State University of NY (SUNY) Educational Opportunity Center (EOC), SUNY Morrisville, SUNY Upstate Medical University, Syracuse City School District, and Syracuse University[7]. Each of the coalition members will lead or co-lead one of the proposed component projects and will engage additional partners in coordination with the Regional Economic Competitiveness Officer to be employed by CenterState CEO.

### CenterState NY Smart Systems Cluster - Potential Component Projects

The Coalition has identified eight priority projects (as well as three not outlined here that may be interchanged through further due diligence during Phase 1). The Coalition has carefully vetted and prioritized each project for investment based on alignment with cluster goals, project readiness, ability to engage a broad group of stakeholders, and the potential for transformative regional impact. Descriptions of priority component projects below include preliminary, estimated metrics, which will be further refined and enhanced during Phase 1.

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https://www.centerstateceo.com/sites/default/files/Metropolitan%20Business%20Plan%20-%20CenterState%20Agenda%20for%20Economic%20Opportunity%20.pdf
[4] See Appendix 4 for further details.
[5] A full list of NAICS codes for the cluster can be found in Appendix 2.
[6]https://www.centerstateceo.com/sites/default/files/CenterState%20NY%20Smart%20Systems%20Cluster%20Demand%20Occupations%20Analysis.pdf
[7] Industry/labor leaders engaged to date are outlined in Appendix 2. Letters of support from community partners are also attached to the application.

**1. Support Infrastructure Investments at the Transformational White Pine Megasite:** $25M request ($45M total cost; $20M match). Expansion and development of the 1,200-acre White Pine Commerce Park (owned by Onondaga County IDA) located 20 minutes from center city Syracuse. The site is currently a national finalist for two large semiconductor manufacturers. It would become the region's largest manufacturer, bringing quality jobs, and driving new demand through suppliers. <u>Estimated Private Investment</u>: $20B and $50B. <u>Anticipated Jobs</u>: 3,000 - 5,000. <u>Potential Barrier</u>: securing the final commitment of one of the two potential end users to the site. <u>Mitigation</u>: Site meets both manufacturers' needs, projected expansion requirements, and has strong community and state support[8]. <u>Timeline</u>: Completion 18 - 24 months after construction start. <u>EDA Priorities</u>: Manufacturing/Exports & FDI

**2. Build a Flex Space Facility at Marcy Nanocenter at SUNY Polytechnic Institute**: $7.75M request ($14.25M total cost; $6.5M match). Led by Mohawk Valley EDGE, this project would develop a 75,000-sf flex space facility for supply chain firms on a 434-acre greenfield campus developed for semi-conductor and advanced technology manufacturing. With a $1.4B investment from NYS, the site is currently home to chipmaker, Wolfspeed, Inc., and Danfoss Silicon Power. <u>Anticipated Jobs</u>: 100-200. <u>Barriers</u>: a financial gap to complete the flex space, site development (pad ready site), and electrical infrastructure; attracting end users. <u>Mitigation</u>: EDGE is talking with potential supply chain firms and prospective semiconductor and advanced electronics firms. <u>Timeline</u>: Construction completed by end of 2023. <u>EDA Priorities</u>: Manufacturing/Exports & FDI

**3. Drive Oswego County Supply Chain Site Readiness**: $7.5M request ($10M total cost; $2.25M match). A 200-acre expansion of a shovel-ready site at Oswego County Industrial Park (owned by Oswego County IDA) for supply chain companies with a goal to create 500,000 sf of manufacturing space in the first ten years. It is in a rural area experiencing high unemployment rates and low per-capita income, within 10 miles of the White Pine Megasite. <u>Anticipated Jobs</u>: 500. <u>No major barriers</u>. A preliminary engineering report and cost estimates have been completed. <u>Timeline</u>: Two phases: enhancing wastewater treatment and conveyance systems (2.5 years) and build-out of internal infrastructure, roads, rail sidings, water, sewer, broadband, gas, and electricity (1 year). <u>EDA Priorities</u>: Manufacturing/Exports & FDI/Equity

**4. Complete the Center City Innovation Hub**: $7M ($46.5M total cost; $39.5M match)
An expansion of CenterState CEO's Tech Garden high-tech business incubator into the Center City Innovation Hub, designed to attract additional startups, including those in the UAS/IoT/Data to Decisions field that can benefit from the Tech Garden's specialized slate of services and resources for those industries. The expanded facility will host the NYS Center for Smart Cities, to serve as a test site for smart cities technology and data hub for the City of Syracuse. <u>Anticipated Jobs</u>: 1,500. <u>Barriers</u>: cost overruns/unanticipated construction issues; COVID-19 impact on use of office space. <u>Mitigation</u>: An analysis of how entrepreneurs use and interact in indoor space and to design an interior that will improve use potential. <u>Timeline</u>: 18-month construction phase anticipated to begin August 2022. <u>EDA Priorities</u>: Tech Based ED/Equity.

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[8] https://www.centerstateceo.com/sites/default/files/NY%20officials%20grow%20optimistic%20about%20luring%20semiconductor%20chip%20plant%20to%20Clay%20article.pdf

**5. Enhance UAS Infrastructure**: $12M request ($20 M total cost; $8 M match). Critical enhancements to UAS infrastructure at the New York UAS Test Site operated by NUAIR Alliance and headquartered in Rome, NY. Surveillance technologies will also be implemented to provide the diversity necessary to satisfy the FAA's desire for robust and reliable real time situational awareness to inform effective decision making and avoid potential incursions. This project also features a unique partnership with SUNY Upstate Medical University to launch their Airborne Lifeline pilot - a program that operates on-demand drone flights from the Regional Blood Bank in Rochester, NY to Upstate's Cancer Center in Syracuse. Metrics: 100 hours of flights and a new certification of authorization. <u>Barriers</u>: Regulatory issues at the FAA. <u>Mitigation</u>: As a designated UAS test site, NUAIR leverages special dispensation to foster innovation while proving safety. <u>Timeline</u>: 18 months from initiation. <u>EDA Priority</u>: Tech-Based ED.

**6. Launch the Smart Systems Cluster Advanced Manufacturing Training Consortium**: $8M request ($9.6M total cost; $1.6M match). This Consortium will bring together educational institutions, industry groups and community organizations across multiple counties to build a workforce pipeline for Smart Systems demand occupations, with a particular focus on semiconductor manufacturing. It will employ CenterState CEO's successful  Work Train model to bring more diverse talent into high-growth advanced manufacturing careers. <u>Metrics</u>: 3,000-5,000 trainees with an 80% placement rate. <u>Barriers</u>: Working across a large geographic area with multiple training partners; duplicating efforts while working with multiple employers; meeting high job demand. <u>Mitigation</u>: CenterState CEO's Workforce Innovation team will help develop a coordination process to build on already strong employer relationships and centralize communication with employers. <u>Timeline</u>: Curriculum development in 2021 with initial training graduates by the end of 2022. <u>EDA Priorities</u>: Equity/Workforce Development.

**7. Build the STEAM School at Central Tech:** $10M request ($85M total cost; $75M match) The renovation of a historic high school in the Syracuse City School District (SCSD) located in downtown Syracuse adjacent to one of Syracuse's most disinvested neighborhoods with high concentrations of race-based poverty. It will be the first regional high school in NYS, accessible to all 25 school districts in the NYS OCM BOCES district. SCSD will leverage its 27 CTE programs and align new programming with Smart Systems demand occupations. <u>Metrics</u>: Graduate 250 students four years after opening. <u>Barriers</u>: increased construction costs, supply chain issues, and shortage of construction workers. <u>Mitigation</u>: SCSD will draw from its construction trades programs for workers. <u>Timeline</u>: Construction completed January 2023. <u>EDA Priorities</u>: Equity/Workforce Development.

**8. Invest in Quantum Computing Research and Infrastructure**: $10M request ($12M total cost; $2M match. The Griffiss Institute along with Syracuse University and other partners will accelerate quantum technologies research, entrepreneurship, and commercialization. Partners will also scale up and integrate quantum tracks into community STEM programs, including the STEAM School, to build a more diverse workforce pipeline. <u>Metrics</u>: 12 quantum startups accelerated. 300 interns/fellows on site annually. <u>Potential Barriers</u>: coordinating teams of higher education institutions. <u>Mitigation</u>: coordination through a central point of contact at Griffiss Institute. <u>Timeline</u>: Implementation Fall 2022. <u>EDA Priorities</u>: Tech-Based ED/Equity/Workforce Development.